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- (81) Designated States (national): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, EG, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: AMINO-LNA, THIO-LNA AND ALPHA-L-OXY-LN

(57) Abstract: A novel class of pharmaceuticals which comprises a Locked Nucleic Acid (LNA) which can be used in antisense therapy. These novel oligonucleotides have improved antisense properties. The novel oligonucleotides are composed of at least one LNA selected from beta-D-thio/amino-LNA or alpha-L-oxy/thio/amino-LNA. The oligonucleotides comprising LNA may also include DNA and/or RNA nucleotides.



A. CLASSIFICATION OF SUBJECT MATTER IPC 7 A61K31/7088 C07H21/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols) IPC 7 A61K C07H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

BIOSIS, EPO-Internal, WPI Data, PAJ, MEDLINE, CHEM ABS Data

C. DOCOM	ENTS CONSIDERED TO BE RELEVANT			
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A	page 2221; table 1	-/	32-38	
X Furth	ner documents are listed in the continuation of box C.	Patent family members are listed	in annex.	
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the International filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "&" document member of the same patent family Date of mailing of the international search report		
	4 May 2004	3 O AUG 2004		
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	Relevant to claim No.
Citation of document, with indication, where appropriate, of the relevant passages	Helevant to Gain No.
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and that	32-38
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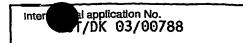
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Internal Application No
PC-70K 03/00788

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	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	10 de cala de la la Ma
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Box I	Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)
This inte	ernational Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1.	Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
2.	Claims Nos.: because they relate to parts of the international Application that do not comply with the prescribed requirements to such an extent that no meaningful international Search can be carried out, specifically:
з. 🗌	Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box II	Observations where unity of invention is lacking (Continuation of item 2 of first sheet)
This inte	emational Searching Authority found multiple inventions in this international application, as follows:
	see additional sheet
1.	As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. X	As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3.	As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4.	No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
Remar	The additional search fees were accompanied by the applicant's protest. No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-31,32-38

Claims: 1-31, 32-38 (when the claims relate to amino-LNA, thio-LNA or alpha-L-oxy-LNA-containing nucleotides) and 39-42, directed to pharmaceutical compositions and oligonucleotide constructs comprising amino-LNA, thio-LNA or alpha-L-oxy-LNA

2. Claims: 32-38

Claims 32-38 directed to oligonucleotide constructs of the formula A-B-C-D (A, C: LNA, B, D non-locked nucleotide units)

INTERNATIONAL SEARCH REPORT

n on patent family members

PC1 Application No

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